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# INTERNATIONAL RESIDENTIAL CODE®

# WELCOME

# 2003

# 2000 to 2003 Comparison of the International Residential Code **Mechanical** Section



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R 303.2 Adds an exception to utilize ventilation air from adjoining spaces for thermally isolated sunrooms, additions, or patios.

For the purpose of determining light and ventilation requirements, any room shall be considered as a portion of an adjoining room when at least one-half of the area of the common wall is open and unobstructed and provides an opening of not less than one-tenth of the floor area of the interior room but not less than 25 square feet.

## **R 303.4.1 Added intake opening location requirements.**

**Mechanical and gravity outdoor air intake openings shall be located a minimum of 10 feet from any hazardous or noxious contaminant, such as vents, chimneys, plumbing vents, streets, alleys, parking lots and loading docks, except as otherwise specified in this code. Where a source of contaminant is located within 10 feet of an intake opening, such opening shall be located a minimum of 2 feet below the contaminant source.**

## R 303.4.2 Added exhaust opening criteria.

Outside exhaust openings shall be located so as not to create a nuisance. Exhaust air shall not be directed onto walkways.



## R 303.5 Added opening protection requirements.

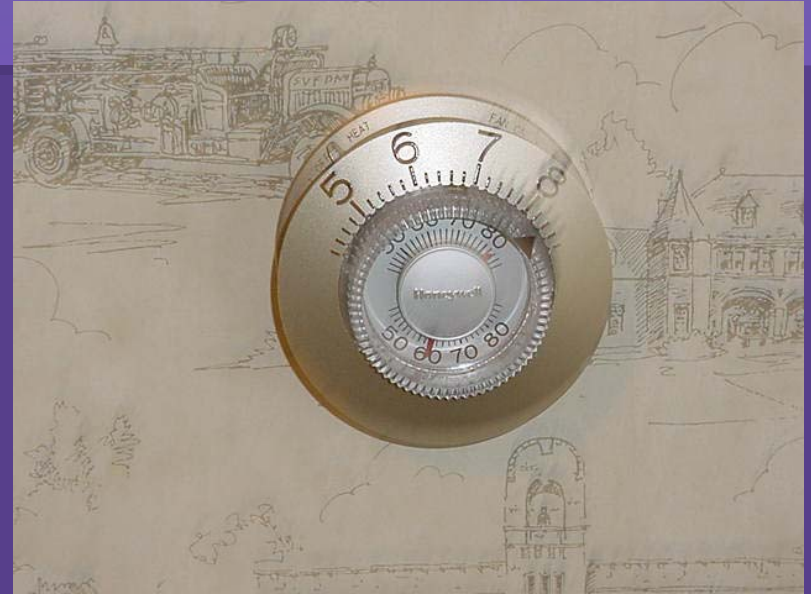
Air exhaust and intake openings that terminate outdoors shall be protected with corrosion-resistant screens, louvers or grilles having a minimum opening size of 1/4 inch and a maximum opening size of 1/2 inch, in any dimension. Openings shall be protected against local weather conditions. Outdoor air exhaust and intake openings shall meet the provisions for exterior wall opening protectives in accordance with this code.



# Residential Building Heat

**R 303.8** Every dwelling unit shall be provided with heating facilities capable of maintaining 68°F heat on a design heating day.

**\*Space heaters shall not be used to achieve compliance.**



**Note:** The USBC incorporates these provisions. However, an exception is added to include relief for “**seasonal**” homes, defined as “used for less than 90 consecutive days per year”.



**R 323.1.5, M 1301.1.1, and M 1401.5**

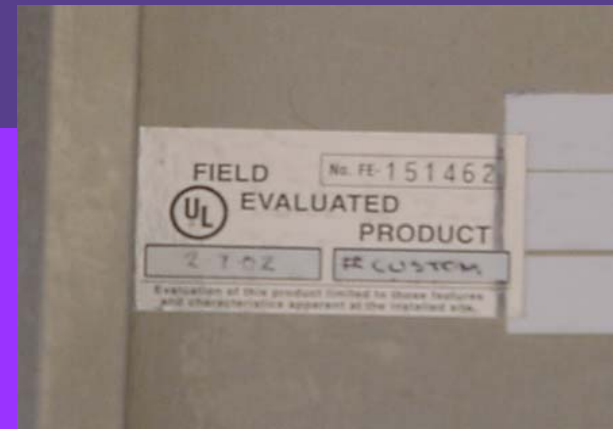
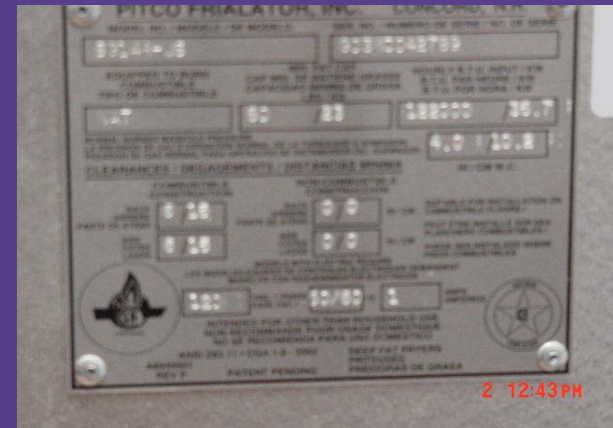
State no mechanical systems shall be installed below the flood design elevation.

**R 323.1.5 Exception:** Mechanical systems are permitted to be installed below the design flood elevation provided they are designed and installed to prevent water from entering or accumulating and resist hydrostatic and hydrodynamic loads and stresses.



# Listing and Labeling

## M 1303.1



# **Appliance Installation**

- **M1307.3 Elevation of ignition source.**

Appliances having an ignition source shall be elevated such that the source of ignition is not less than 18 inches above the floor in garages.

- **M1307.3.1 Protection from impact.**

Appliances located in a garage shall be protected from vehicle impact

# M 1307.4 Hydrogen coverage.

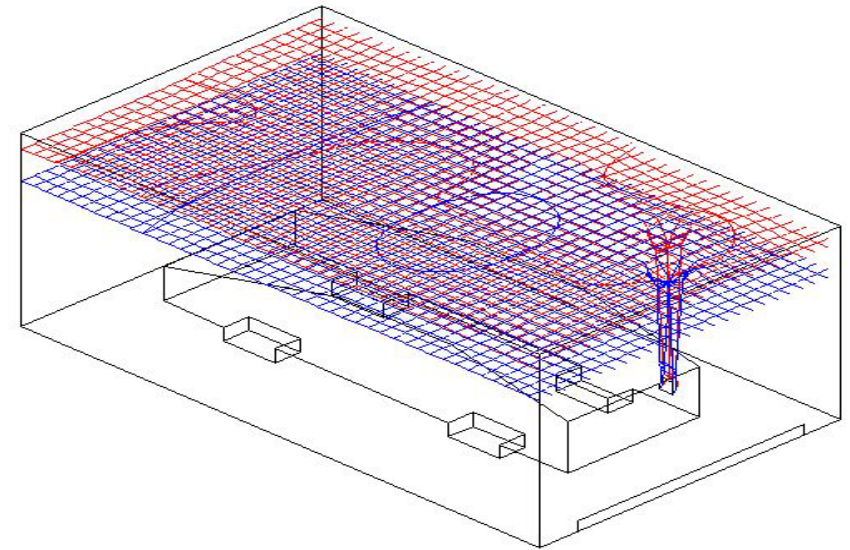


Figure C 1 - Unvented garage, 1 SCFM hydrogen leak for 20 minutes.  
Blue: 0.82% hydrogen. Red: 4.1% hydrogen

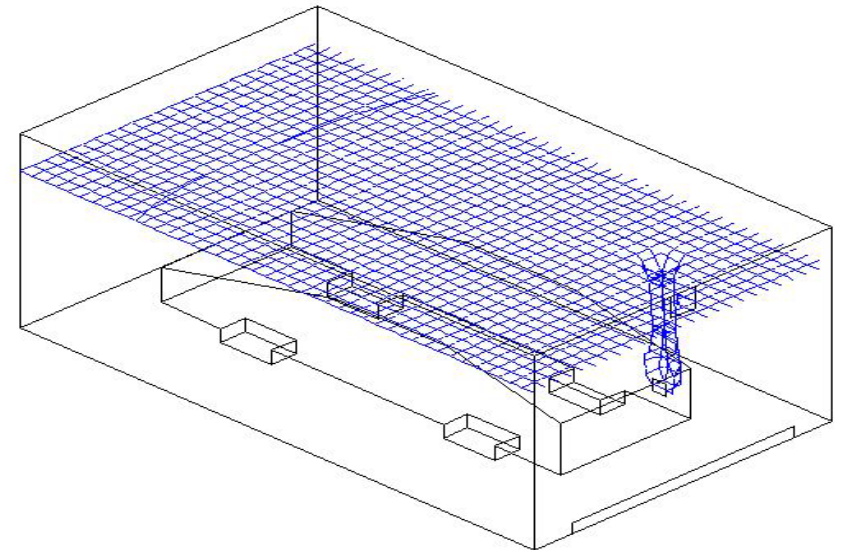


Figure C 1 - Vented garage, 1 SCFM hydrogen leak for 20 minutes.  
Blue: 0.82% hydrogen. Red: 4.1% hydrogen

## **M1308.2**

Protection from  
physical damage.  
Requires shield plates  
for mechanical piping  
systems.





# Condensate Drainage

- **M1411.3.2** Material and Sizes have been added along with installation methods for the different types of material.



- **M 1501.1** Permits the use of listed and labeled condensing clothes dryers.

(Exception: This section shall not apply to listed and labeled condensing (ductless) clothes dryers.)

- **Booster fan---** M1501.3 Exception #1 has been deleted by USBC. Booster fans **ARE NOT ALLOWED.**

- **M1502.3** Where domestic kitchen cooking appliances are equipped with ducted range hoods or down-draft exhaust systems, the fans shall be sized in accordance with Section M1506.3.





# M1506

## Mechanical Ventilation

- **M1506.1 General.** Where toilet rooms and bathrooms are mechanically ventilated, the ventilation equipment shall be installed in accordance with this section.
- **M1506.2 Recirculation of air.** Exhaust air from bathrooms and toilet rooms shall not be recirculated within a residence or to another dwelling unit.
- **M1506.3 Ventilation rate.** Ventilation systems shall be designed to have the capacity to exhaust the minimum air flow rate determined in accordance with Table M1506.3.

**TABLE M1506.3**  
**MINIMUM REQUIRED EXHAUST RATES FOR**  
**ONE- AND TWO-FAMILY DWELLINGS**

| AREA TO BE VENTILATED  | VENTILATION RATES   |
|------------------------|---|
| Kitchens               | 100 cfm intermittent or<br>25 cfm continuous                                  |
| Bathrooms—Toilet Rooms | Mechanical exhaust capacity of<br>50 cfm intermittent or 20 cfm<br>continuous |

For SI: 1 cubic foot per minute = 0.0004719 m<sup>3</sup>/s.

# Combustion Air

- **M1701.6 Opening location.** In areas prone to flooding as established by Table R301.2(1), openings shall be located at or above the design flood elevation established in Section R323.1.5.
- Combustion air requirements will be covered in the **Gas** portion of this presentation in **Chapter 24**.

- **M1804.2.5 Direct vent terminations.** Vent terminals for direct-vent appliances shall be installed in accordance with the manufacturer's installation instructions.



## M 1804.2.6 Mechanical draft systems.

Mechanical draft systems shall be installed in accordance with their listing, the manufacturer's installation instructions and, except for direct vent appliances, the following requirements. [Items #3,5,6 and 7 are changes]

- 3. The vent termination point shall not be located closer than 3 feet to an interior corner formed by two walls perpendicular to each other.

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## **M 1804.2.6 Mechanical draft systems.**

- 5. The vent termination shall not be mounted directly above or within 3 feet horizontally from an oil tank vent or gas meter.
- 6. Power exhauster terminations shall be located not less than 10 feet from lot lines and adjacent buildings.
- 7. The discharge shall be directed away from the building.

- **M 2001.3** Adds requirements for shutoff valves on boiler supply and return piping systems, except for steam type.
- **M 2002.2 and M 2002.3** Requires temperature and pressure gauges on all boilers.
- **M 2002.5** Requires all hot water boilers be equipped with low-water cut off control.
- **M 2003.1** Requires expansion tanks for all hot water boilers.

2003 USBC added M2201.7

**Requires the actual exposed portion of the “fill pipe” to be physically removed from abandoned or removed fuel oil tanks.**



# Questions for Mechanical?



# Fuel Gas

**All Fuel Gas (Natural) related issues are addressed in the 2003 IRC for residential. (LP tables are found in the International Fuel Gas Code)**

# Combustion air

- G 2407

Completely revised combustion air provisions. Indoor air maybe used if 50 cubic feet of inside space per every 1,000 btu is available. However if the infiltration rate is known, the KAIR (Known Air-Infiltration-Rate) method prescribed shall be used.

- G 2407.5.3.2

Combining space from different levels is permitted if 2 square inches per each 1,000 btu is available of net free space.

## ■ G 2407.10

### Louver reductions for combustion air:

- Take off 25% for metal grills
- Take off 75% for wood grills

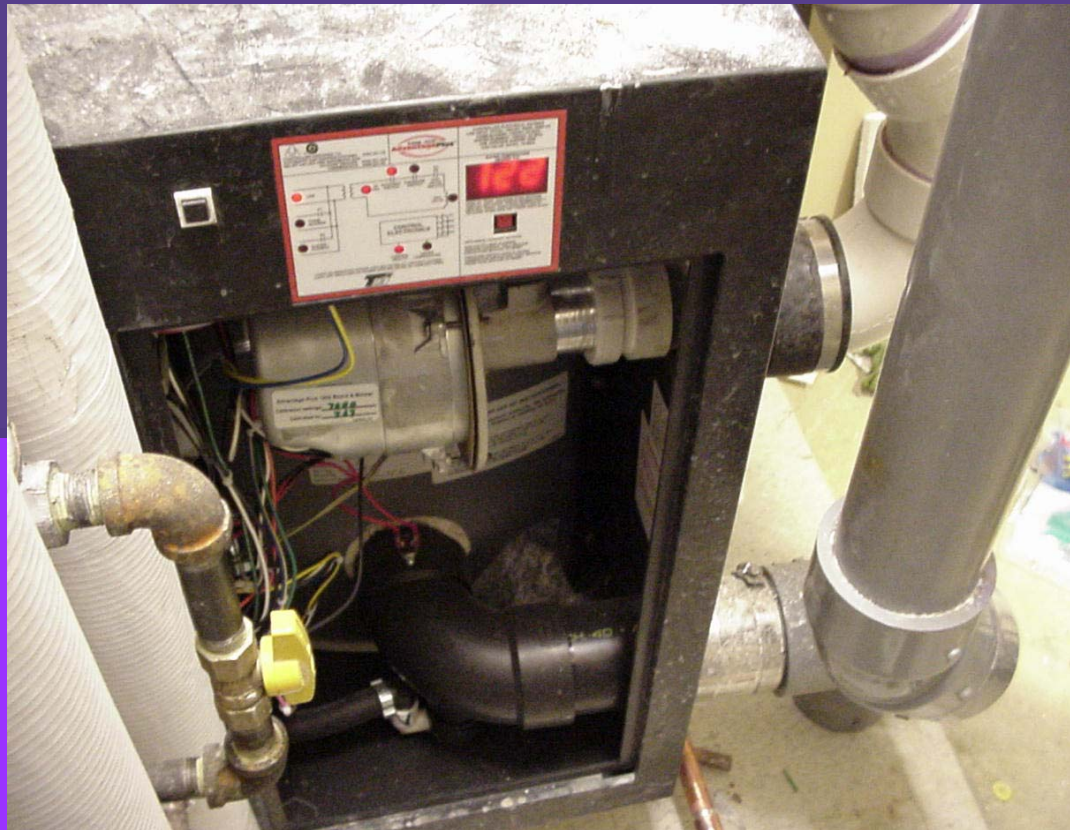


- G 2408.1 Requires that equipment installation instructions shall be on site at time of inspection.
- G 2408.2 Garages. Allows the installation of water heaters without 18" elevation if the heater is listed as "flammable vapor resistant"



- G 2411

Gas piping electrical bonding is considered compliant through the electrical connections.





- Gas piping charts in IRC reflect the most applicable residential type used systems. The charts in the IFGC are permitted to be used when the specific conditions are applicable.

- G 2413.4

Sizing criteria has been revised, reformatted and now more alternatives are available.

1. Longest length method
2. Branch length method
3. Hybrid pressure



- G 2415.7  
Elevation of outdoor piping. Piping installed outdoors shall be at least 3½" above the ground or roof.



- G 2417.1.2 Repairs and additions. Permits minor repairs and additions to be tested with a leak detecting fluid.
- G 2417.1.3 New Branches. Requires the new branch itself to be pressure tested but the connection to an existing system can be tested with leak detecting fluid.

- G 2417.4

Test gauges.

Mechanical gauges shall have a range such that the highest end of the scale is not greater than five times the test pressure.



# **G2419.4 Sediment trap**

Where a sediment trap is not incorporated as part of the gas utilization equipment, a sediment trap shall be installed downstream of the equipment shutoff valve as close to the inlet of the equipment as practical. The sediment trap shall be either a tee fitting with a capped nipple in the bottom opening of the run of the tee or other device approved as an effective sediment trap. Illuminating appliances, ranges, clothes dryers and outdoor grills need not be so equipped.



# Questions for Gas?

